

Career-Technical Credit Transfer (CT)²
Information Support Services and Networking
Career-Technical Assurance Guide (CTAG)

CTIT007 Cisco I: CCNA 7 – Introduction to Networks

Credits: 3 Semester Hours

General Course Description: Introduction to Networks (ITN) covers the architecture, structure, functions and components of the Internet and other computer networks. Students achieve a basic understanding of how networks operate and how to build simple local area networks (LAN), perform basic configurations for routers and switches, and implement Internet Protocol (IP).

Credits: 3 Semester Hours:

Learning Outcomes:

- Configure switches and end devices to provide access to local and remote network resources.
- Explain how physical and data link layer protocols support the operation of Ethernet in a switched network.
- Configure routers to enable end-to-end connectivity between remote devices.
- Create IPv4 and IPv6 addressing schemes and verify network connectivity between devices.
- Explain how the upper layers of the Open Systems Interconnect (OSI) model support network applications.
- Configure a small network with security best practices.
- Troubleshoot connectivity in a small network.

The learning outcomes are dictated by the credential examination.

CTIT008 Cisco II: CCNA 7– Switching, Routing, and Wireless Es **Credits: 3 Semester Hours**

General Course Description: Switching, Routing, and Wireless Essentials (SRWE) covers the architecture, components, and operations of routers and switches in small networks and introduces wireless local area networks (WLAN) and security concepts. Students learn how to configure and troubleshoot routers and switches for advanced functionality using security best practices and resolve common issues with protocols in both IPv4 and IPv6 networks.

Credits: 3 Semester Hours:

Learning Outcomes:

- Configure Virtual Local Area Network (VLANs) and Inter-VLAN routing applying security best practices.
- Troubleshoot inter-VLAN routing on Layer 3 devices.
- Configure redundancy on a switched network using Spanning Tree Protocol (STP) and Port Link Aggregation (EtherChannel).
- Troubleshoot Port Link Aggregation (EtherChannel) on switched networks.
- Explain how to support available and reliable networks using dynamic addressing and first-hop redundancy protocols.
- Configure dynamic address allocation in IPv6 networks.
- Configure WLANs using a Wireless LAN Controllers (WLC) and L2 security best practices.
- Configure switch security to mitigate local area network (LAN) attacks.
- Configure IPv4 and IPv6 static routing on routers.

The learning outcomes are dictated by the credential examination.

General Course Description: Enterprise Networking, Security, and Automation (ENSA) describes the architecture, components, operations, and security to scale for large, complex networks, including wide area network (WAN) technologies. The course emphasizes network security concepts and introduces network virtualization and automation. Students learn how to configure, troubleshoot, and secure enterprise network devices and understand how application programming interfaces (API) and configuration management tools enable network automation.

Credits: 3 Semester Hours:

Learning Outcomes:

- Configure single-area Open Shortest Path First (OSPFv2) in both point-to-point and multiaccess networks.
- Explain how to mitigate threats and enhance network security using access control lists and security best practices.
- Implement standard IPv4 Access Control List (ACL) to filter traffic and secure administrative access.
- Configure Network Address Translation (NAT) services on the edge router to provide IPv4 address scalability.
- Explain techniques to provide address scalability and secure remote access for WANs.
- Explain how to optimize, monitor, and troubleshoot scalable network architectures.
- Explain how networking devices implement Quality of Services (QoS).
- Implement protocols to manage the network.
- Explain how technologies such as virtualization, software defined networking, and automation affect evolving networks.

The learning outcomes are dictated by the credential examination.